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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,947	10/13/2005	Richard J. Barker	GB03 0047 US1	6696

65913 7590 03/24/2008

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EXAMINER

NGUYEN, HIEP

ART UNIT	PAPER NUMBER
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2816

NOTIFICATION DATE	DELIVERY MODE
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03/24/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No. 10/552,947	Applicant(s) BARKER, RICHARD J.	
	Examiner HIEP NGUYEN	Art Unit 2816	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Correction and/or clarification is required.

Regarding claims 1, 3, 5, 6, 12, 13, 14 and 17-19, the recitation “main cells” and “sense cells” are indefinite because it is not clear. Figures 1-6 show that the power insulated gate field effect transistor has only one main cell (2) and one sense cell (4). Clarification is required.

Regarding claim 2, the recitation “through the sense cells and having an output (22) arranged to drive the sense cell (4) gate towards a voltage in which a target current passes through the sense cells (4), and to operate in the hold state to hold its output voltage and to drive the main cell (2) insulated gate with that output voltage” is indefinite because it is confusing. Figure 2 shows that that main cell (2) and the sense cell (4) cannot be driven separately as recited. When switch (24) closes, both cells are driven at the same time.

It is also not clear figure 2 shows only one sense cell (4) and one main cell (2) while the claim recites a plurality of sense cells.

Regarding claim 3, the recitation “the feedback sample and hold circuit” on line 2 is indefinite because it is not clear whether as to it is the same or different than the “a sample and hold circuit” in claim 1. The recitation “the feedback sample and hold circuit” lacks antecedent basis.

Claims 2, 4, 7-11, 15, 16 and 20 are indefinite because of the technical deficiencies of claims 1 and 17.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3 and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Isham et al. (US RE38,487).

Regarding claim 1, figure 1 of Isham shows a device comprising:

a power insulated gate field effect transistor, having a main cell (12) controlled by a main cell insulated gate and a sense cells (14) controlled by a sense cell insulated gate;

a sample and hold circuit (38) connected in series with the sense cells (14) and arranged to operate in a plurality of states including at least one sample state and a hold state;

wherein the sample and hold circuit is arranged to sense the current flowing through the sense cells (14) when in the at least one sample state but not in the hold state (col.2, lines19-21).

Regarding claim 2, the sample and hold circuit is a feedback sample and hold circuit connected to the sense cell (14) and arranged to operate in the sample state to sense the current passing through the sense cell and having an output arranged to drive the sense cell (14) gate towards a voltage in which a target current passes through the sense cell, and to operate in the hold state to hold its output voltage and to drive the main cell (12) insulated gate with that output voltage.

Regarding claim 3, figure 1 of Isham shows that the main cell and the sense cell are driven separately depending on the sensing state or the holding state.

Regarding claim 17, figure 1 of Isham shows a method of operating a field effect transistor, including

providing a power field effect transistor having a main cell (12) controlled

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by main cell insulated gates and sense a cell (14) controlled by sense cell insulated gate, and a sample and hold circuit (20, 34, 36, 38) connected to the sense cell;

switching to at least one sample state in which the sample and hold circuit outputs a voltage to drive the sense cell (14) but not the main cell (12), and sensing the sense cell current;

switching to a hold state in which the sense cell current (I_{sense}) is not measured; and

cycling between the sample and hold states.

Regarding claim 18, the sample and hold circuit is a feedback sample and hold circuit (20, 34, 36, 38) connected to the sense cell (14);

in a feedback sample state, the feedback sample and hold circuit (20, 34, 36, 38) outputs a voltage to drive the sense cell (14) but not the main cell (12), the feedback sample and hold circuit output voltage being driven towards a voltage in which a predetermined target current passes through the sense cell (14); and in the hold state the output voltage of the feedback sample and hold circuit is held constant and used to drive the main cell insulated gate (12) with the voltage.

Regarding claim 19, in a measurement sample state, the sample and hold circuit outputs a current (I_{sense}) on a measurement output terminal corresponding to the current through the sense cell.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Isham (US RE38,487).

Regarding claim 16, figures 1 and 3a show the control circuit (20) that controls the switches. Figures 1 and 3a does not show that the sample and the hold modes with a duty cycle in which the ratio of time in the sample mode to time in the hold mode is in the range 1:5 to 1:50. However, it is old and well known and it would have been an obvious matter of preference bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed relative predetermined value of a differential input voltage limitations because applicant has not disclosed that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using another relative predetermined value of a differential input voltage. Indeed, it has been held that optimization of range limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See MPEP 2144.05(II): "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. '[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.'" In re Aller, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955). See also In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969), Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989), and In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990). As set forth in MPEP 2144.05(III). Therefore, it would have been obvious to one having ordinary skill in the art to select ratio of time in the sample mode to time in the hold mode is in the range 1:5 to 1:50 for proper performance of the circuit.

Regarding claim 20, figure 1 of Isham includes all the limitations of this claim except for the limitation that the ratio of the time in the at least one sample state to time in the hold state is in the range 1:5 to 1:20. However, it is old and well known

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and it would have been an obvious matter of preference bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the particular claimed relative predetermined value of a differential input voltage limitations because applicant has not disclosed that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using another relative predetermined value of a differential input voltage. Indeed, it has been held that optimization of range limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See MPEP 2144.05(II): "Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. '[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.'" In re Aller, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955). See also In re Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969), Merck & Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989), and In re Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990). As set forth in MPEP 2144.05(III). Therefore, it would have been obvious to one having ordinary skill in the art to select the ratio of the time in the at least one sample state to time in the hold state is in the range 1:5 to 1:20 to conform to the electrical requirements of the system that uses the "device".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hiep Nguyen whose telephone number is (571) 272-1752. The examiner can normally be reached on Monday to Friday from 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Richard N can be reached on (571) 272-1736. The fax

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phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tuan T. Lam/

Primary Examiner, Art Unit 2816

/Hiep Nguyen/

Examiner, Art Unit 2816